

SDG&E, June 15, 2018
 Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.
 In Response to Data Request, R15-01-008 2018 June Report
 Appendix 8; Rev. 03/31/18

Summary Tables:

System Categories	Emission Source Categories	Fugitive or Vented	For Reference Only: 2015 Baseline Emissions (Mscf)	2016 Total Annual Volume of Leaks & Emissions (Mscf)	2016 Total Annual Count of Leak & Emission Items	2017 Total Annual Volume of Leaks & Emissions (Mscf)	2017 Total Annual Count of Leak & Emission Items	2017 Explanatory Notes/Comments	Emission Change for Year Over Year Comparison from 2016 to 2017 (Mscf)	Percentage Emission Change for Year Over Year Comparison from 2016 to 2017	Count Change for Year Over Year Comparison from 2016 to 2017	Percentage Count Change for Year Over Year Comparison from 2016 to 2017	Explanation for Significant Percentage Change for Year Over Year Comparison from 2016 to 2017
Transmission Pipelines	Pipeline Leaks	Fugitive		84	Leak count: 0 Total System Mileage: 225	88	Leak count: 0 Total System Mileage: 234		3	4.0%	9	4.0%	For column L, the Transmission Pipeline Mileage went up by 9 miles. Column L reflects the change in pipeline miles.
	All Damages	Fugitive		0	Number of emission items: 0	0	Number of emission items: 0		-		-		
	Blowdowns	Vented		3,282	Number of blowdown events: 65	2,012	Number of blowdown events: 86		(1,270)	(38.7%)	21	32.3%	<ul style="list-style-type: none"> The primary reason for the decreased emission was fewer pipeline blowdown activities, from 17 events in 2016 to 7 events in 2017. In 2017, the primary reason for the increase in count was due to an increase in Transmission Odor Intensity Test events. In 2017, 60 Transmission Odor Intensity Test events were reported with associated emissions of 0.161 Mscf. In SDG&E 2016 Annual report, 48 events were reported with the associated emissions of 0.13 Mscf. However, after reviewing the 2016 data, it was determined 64 events should have been reported, which corresponds to 0.172 Mscf. Therefore the net decrease of Transmission Odor Intensity Tests should be 4. In 2016 Pipeline Drip and Relief Valve Inspections were accounted for in Transmission M&R stations. In 2017, some were moved to Transmission Pipeline. Filter Change-outs is added as a new emissions category. This results in 0.09 Mscf from 3 events.
	Component Emissions	Vented		0	Number of devices: 0	0	Number of devices: 0		-		-		
	Component Leaks	Fugitive		0	Number of leaks: 5	0	Number of leaks: 14		-		9	180.0%	In 2017, as a result of the implementation of GO 112F, the leak survey requirements for all Transmission Pipelines went from annual to bi-annual, required the use of leak detecting equipment, and documentation of minor leak repairs. Emissions for component leaks are accounted for in the mileage based emissions factor, and reported in Transmission Pipeline Leaks.
	Odorizers	Vented		2	Number of units: 4	2	Number of units: 4		-	0.0%	-	0.0%	
Transmission M&R Stations	Station Leaks & Emissions	Fugitive		23,566	Number of facilities: 35	25,121	Number of facilities: 36		1,555	6.6%	1	2.9%	
	Blowdowns	Vented		4	Number of blowdown events: 112	3	Number of blowdown events: 109		(1)	(22.3%)	(3)	(2.7%)	Blowdowns emissions are a function of activity level. Blowdown volume varies by activity, depending on the type of work performed.
	Component Emissions	Vented		21	Number of devices: 6	0	Number of devices: 17		(21)	(100.0%)	11	183.3%	The number of Pneumatic devices on Transmission M&R facilities are reported here in Component emissions, but the emissions are included in the facility based emission factor and reported in Station Leaks & Emissions. In 2016, all reported emissions were estimated based on one pneumatic device at Producer site. In 2017, system data was reviewed to confirm there are no pneumatics at Producer sites. This accounts for the decreased emissions from 21 to 0 Mscf. SDG&E's databases used for reporting historically were not designed to report individual component level details. A more in-depth analysis was performed in 2017, updating our estimated count of each component type. Per the request in Best Practice 9, SDG&E plans to update the databases with component level details to further improve reporting capabilities. Below are the updated component counts: <ul style="list-style-type: none"> High Bleed at Company site: 2 (2016) vs 2 (2017) Intermittent at Company site: 3 (2016) vs 15 (2017) Intermittent Bleed at Producer site: 1 (2016) vs 0 (2017)
	Component Leaks	Fugitive		0	Number of leaks: 4	0	Number of leaks: 10		-		6	150.0%	The number of component leaks increased due to increased leaks surveys associated with GO 112F. The emissions for Component Leaks are included in the facility based emission factor and reported in Station Leaks & Emissions.
Transmission Compressor Stations	Compressor Emissions	Vented		3,053	Number of compressors: 10	726	Number of compressors: 10		(2,328)	(76.2%)	-	0.0%	The decrease in the emissions can be attributed to replacement of compressor rod packing.
	Compressor Leaks	Fugitive		0	Leaks on compressor piping are reported as "component leaks"	N/A	N/A	This worksheet was combined with Component Leaks worksheet in 2017 template.					
	Blowdowns	Vented		4,299	Number of blowdown events: 212	3,695	Number of blowdown events: 268		(604)	(14.1%)	56	26.4%	In 2016 blowdown events may have been aggregated and blowdown count may not be reflective of actual operational activity. In 2017 an IT system was implemented that tracks and reports all blowdown activities, including small blowdowns that were previously aggregated. In addition, a study was performed to measure blowdown volumes to more accurately estimate blowdown emissions.
	Component Emissions	Vented		910	Number of devices: 44	887	Number of devices: 43		(24)	(2.6%)	(1)	(2.3%)	
Component Leaks	Fugitive		3,758	Number of leaks: 49	988	Number of leaks: 24		(2,770)	(73.7%)	(25)	(51.0%)	The decrease in emissions is due primarily to changes in methodology for determining the number of days leaking per template change.	

System Categories	Emission Source Categories	Fugitive or Vented	For Reference Only: 2015 Baseline Emissions (Mscf)	2016 Total Annual Volume of Leaks & Emissions (Mscf)	2016 Total Annual Count of Leak & Emission Items	2017 Total Annual Volume of Leaks & Emissions (Mscf)	2017 Total Annual Count of Leak & Emission Items	2017 Explanatory Notes/Comments	Emission Change for Year Over Year Comparison from 2016 to 2017 [Mscf]	Percentage Emission Change for Year Over Year Comparison from 2016 to 2017	Count Change for Year Over Year Comparison from 2016 to 2017	Percentage Count Change for Year Over Year Comparison from 2016 to 2017	Explanation for Significant Percentage Change for Year Over Year Comparison from 2016 to 2017
	Storage Tank Leaks & Emissions	Vented		2	Number of emission items: 37	2	Number of emission items: 33		(0.1)	(5.9%)	(4)	(10.8%)	This is normal variation based on operational activity level.
Distribution Main & Service Pipelines	Pipeline Leaks	Fugitive		27,360	Number of known leaks: 534 Estimated number of unknown leaks: 728 Total number of leaks: 1,262	4,501	Number of known leaks: 652 Estimated number of unknown leaks: 174 Total number of leaks*: 826	*This line item includes the estimated emissions from the estimated number of unsurveyed pipeline leaks.	(22,859)	(83.5%)	(436)	(34.5%)	<ul style="list-style-type: none"> The reduction in number of unknown leaks from 728 to 174 is primarily due to the discovery of data that permitted allocation of known leaks from the category of Routine Leak Survey to O&M Activities. The estimated number of unknown leaks and total emissions for this line item cannot be compared between 2016 and 2017 data due to refinement of information that occurred between the report years. The change in number of known leaks should be considered to be normal year-over-year variation due to variables in different areas surveyed year to year, variability in the operating environment, and variation in the rate at which system leaks develop. In addition, the equation used to calculate the number of unknown leaks was corrected as approved by SED to avoid overstating the emissions when using actual survey miles. The correction to the equation is explained in the Appendix 4 under "Unsurveyed Pipeline Leaks" tab. Based on the corrected equation, the estimated number of unknown leaks changed from 148 to 174 for 2017. The emissions estimate for Distribution Main & Service Pipeline unknown leaks category changed from 3,973 Mscf to 4,501 Mscf.
	All Damages	Fugitive		9,239	Number of damages: 450	9,142	Number of damages: 431		(98)	(1.1%)	(19)	(4.2%)	
	Blowdowns	Vented		179	Number of blowdown events: 276	652	Number of blowdown events*: 257	*Individual event data for Pipeline Abandonment is not available.	474	265.2%	(19)	(6.9%)	<ul style="list-style-type: none"> The increase in blowdown emissions is due to six pipeline blowdowns associated with construction projects.
	Component Emissions	Vented		0	Number of emission items: 0	0	Number of emission items: 0	No Devices	-	-	-	-	
	Component Leaks	Fugitive		0	Number of leaks: 0	0	Number of leaks: 0		-	-	-	-	
Distribution M&R Stations	Station Leaks & Emissions	Fugitive		79,324	Number of stations: 482	78,389	Number of stations: 478		(936)	(1.2%)	(4)	(0.8%)	
	All Damages	Fugitive				0	Number of damages: 0	This tab is added to this year template.	-	-			This is a new worksheet in this appendix so there is no year-over-year comparison.
	Blowdowns	Vented		22	Number of blowdowns*: 2,840	25	Number of blowdowns*: 2,665	*Individual event data for Pipeline Abandonment at Reg Station is not available.	3	15.3%	(175)	(6.2%)	Blowdowns emissions are a function of activity level. Blowdown volume varies by activity, depending on the type of work performed.
	Component Emissions	Vented		0	Number of devices: 0	0	Number of devices: 0		-	-	-	-	
	Component Leaks	Fugitive		0	Number of leaks: 26	0	Number of leaks: 44		-	-	18	69.2%	The increase in the count is due to documentation of minor leaks. The emissions for Component Leaks are included in the facility based emission factor and reported in Station Leaks & Emissions.
	Meter Leaks	Fugitive		126,806	Number of meters: 878,093	127,573	Number of meters: 883,162		767	0.6%	5,069	0.6%	
	All Damages	Fugitive		807	Number of damages: 58	2,942	Number of damages: 171		2,134	264.4%	113	194.8%	<ul style="list-style-type: none"> The majority of the increase in emissions is due to an increase in damages classified as Aboveground Hazardous (AH). In 2016, SDG&E reported 33 AH damages which corresponded to 805 Mscf, whereas in 2017 SDG&E reports 85 AH damages which correspond to 2,929 Mscf. Most of the 85 AH damages can be attributed to natural force damages such as fires and heavy rainfall. The increase in the number of damages is due to increased AH damages (52) as discussed above, as well as increased Aboveground Non-Hazardous Minor (AM) damages. In 2016 AM damages were not recorded, whereas in 2017 SDG&E reports 61 with the associate emissions of 5.86 Mscf. This is due to documentation of minor leaks.
	Vented Emissions	Vented		40	Number of blowdown events: 47,920	48	Number of blowdown events: 55,917		8	19.7%	7,997	16.7%	Vented emissions are a function of activity level. Emission volume varies by activity, depending on the type of work performed.
	Above Ground MSA Leaks	Fugitive		0	Number of leaks: 4,230	0	Number of leaks: 5,681		-	-	1,451	34.3%	The increase in the count is due to documentation of minor leaks. The emissions for Above Ground MSAs are included in the facility based emission factor and reported in Meter Leaks.

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Customer Meters	Component Emissions	Vented		0	Number of devices: 2	0	Number of devices: 6		-		4	200.0%	<p>The 200% increase in count represents 4 Intermittent Bleed Pneumatic devices. Below are the updated component counts:</p> <ul style="list-style-type: none"> • High Bleed: 2 (2016) vs 2 (2017). • Intermittent Bleed: 0 (2016) to 4 (2017) <p>The number of Pneumatic devices on Customer Meters are reported here in Component emissions, but the emissions are included in the facility based emission factor and reported in Meter Leaks.</p> <p>SDG&E's databases used for reporting historically were not designed to report individual component level details. A more in-depth analysis was performed in 2017, updating our estimated count of each component type. Per the request in Best Practice 9, SDG&E plans to update the databases with component level details to further improve reporting capabilities.</p>
Underground Storage	Storage Leaks & Emissions	Fugitive		0	Number of emission items: 0	0	Number of emission items: 0		-		-		
	Compressor Emissions	Vented		0	Number of emission items: 0	0	Number of emission items: 0		-		-		
	Compressor Leaks	Fugitive		0	Number of emission items: 0	0	Number of emission items: 0	This worksheet was combined with Component Leaks worksheet in 2017 template.	-		-		
	Blowdowns	Vented		0	Number of emission items: 0	0	Number of emission items: 0		-		-		
	Component Emissions	Vented		0	Number of emission items: 0	0	Number of emission items: 0		-		-		
	Component Leaks	Fugitive		0	Number of emission items: 0	0	Number of emission items: 0		-		-		
	Dehydrator Vent Emissions	Fugitive		0	Number of emission items: 0	0	Number of emission items: 0		-		-		
Unusual Large Leaks	(Description)								-				
Total			282,047	282,759		256,794						-9.18%	

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System Wide Leak Rate Data

1/1/2017 - 12/31/2017

The highlighted cells show the volumes that are summed together as the throughput for calculating the system wide leak rate.

Gas Storage Facilities:

Average Close of the Month Cushion Gas Storage Inventory (Mscf)	Average Close of the Month Working Gas Storage Inventory (Mscf)	Total Annual Volume of Injections into Storage (Mscf)	Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Withdrawals from Storage (Mscf)	Explanatory Notes / Comments
N/A	N/A	N/A	N/A	N/A	

Transmission System:

Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Gas Transported to or for Customers* in State (Mscf)	Total Annual Volume of Gas Transported to or for Customers* out of State (Mscf)	Total Annual Volume of Gas Transported to utility-owned or third-party storage fields for injection into storage (Mscf)	Explanatory Notes / Comments
220,032	110,096,095	0	N/A	

Distribution System:

Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Gas Transported to or for Customers* in State (Mscf)	Total Annual Volume of Gas Transported to or for Customers* out of State (Mscf)	Explanatory Notes / Comments
45,901	108,838,948	0	

*The term customers includes anyone that the utility is transporting gas for, including customers who purchase gas from the utility.

Customers can be anyone including residential, businesses, other utilities, gas transportation companies, etc.

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Summary Tables:

Natural Gas Properties	Average Mole Percent	Explanatory Notes / Comments
Methane	93%	Rainbow
Carbon Dioxide	1.0%	Rainbow
Ethane	4.9%	Rainbow
C3+	0.4%	Rainbow
C6+	0.01%	Rainbow
Oxygen	0.2%	Estimated up to limit, Not Tested
Hydrogen		Not Tested
Sulfur	0.0002%	Rainbow
Water	0.01%	Estimated to limit
Carbon Monoxide		Not Tested
Particulate Matter		Not Tested
Inert Gas	1.8%	Rainbow
Odorant	0.0001%	Rainbow